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Loop Antenna Crystal Radio

C2
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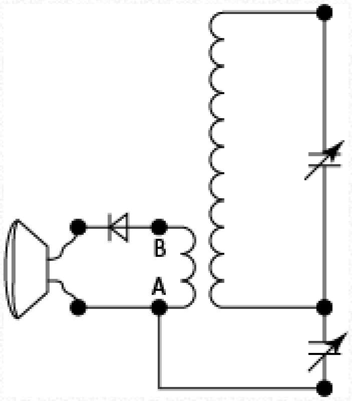

View attachment 15935 I built a fully integrated loop antenna crystal radio on a 23" diameter form (one slat of plastic/wood window blind). I like it because it is completely portable and does not require any additional antenna.

11 turns form the primary and 3 turns the secondary, small gauge phone line stranded copper, all close wound. All turns work out to about 1/2" wide. The primary currently measures 216 uH and I think the secondary was around 40 uH (I'll check this again as I think it was actually much lower, like 16 uH even).

I used a dual gang 15-400, 12-200 pF air variable capacitor. I tried connecting the 12-200 to either point A or B, or not at all. Point B gave about 2 uA more current in the secondary and Point A about 2 uA more again, so I left it at point A.

It tunes from a little over 600 kHz to a little over 1800 kHz. I'm able to pick up 10 stations and the antenna is highly directional, I can completely null the strongest station by turning the loop in-line to the station. The strongest station produces 18 uA in the secondary. What is interesting to note, however, is that I was using an RF generator to find the limits with its output into an open wire loosely wrapped around the antenna. It might be the generator output, but the 600 kHz resonance point produced much less current (~60 uA) than the top end.

I would like to lower its response by 100 kHz. Any suggestions? I was thinking of adding a turn or two to the primary, but given the note above, I'm not sure if something else would be more appropriate?

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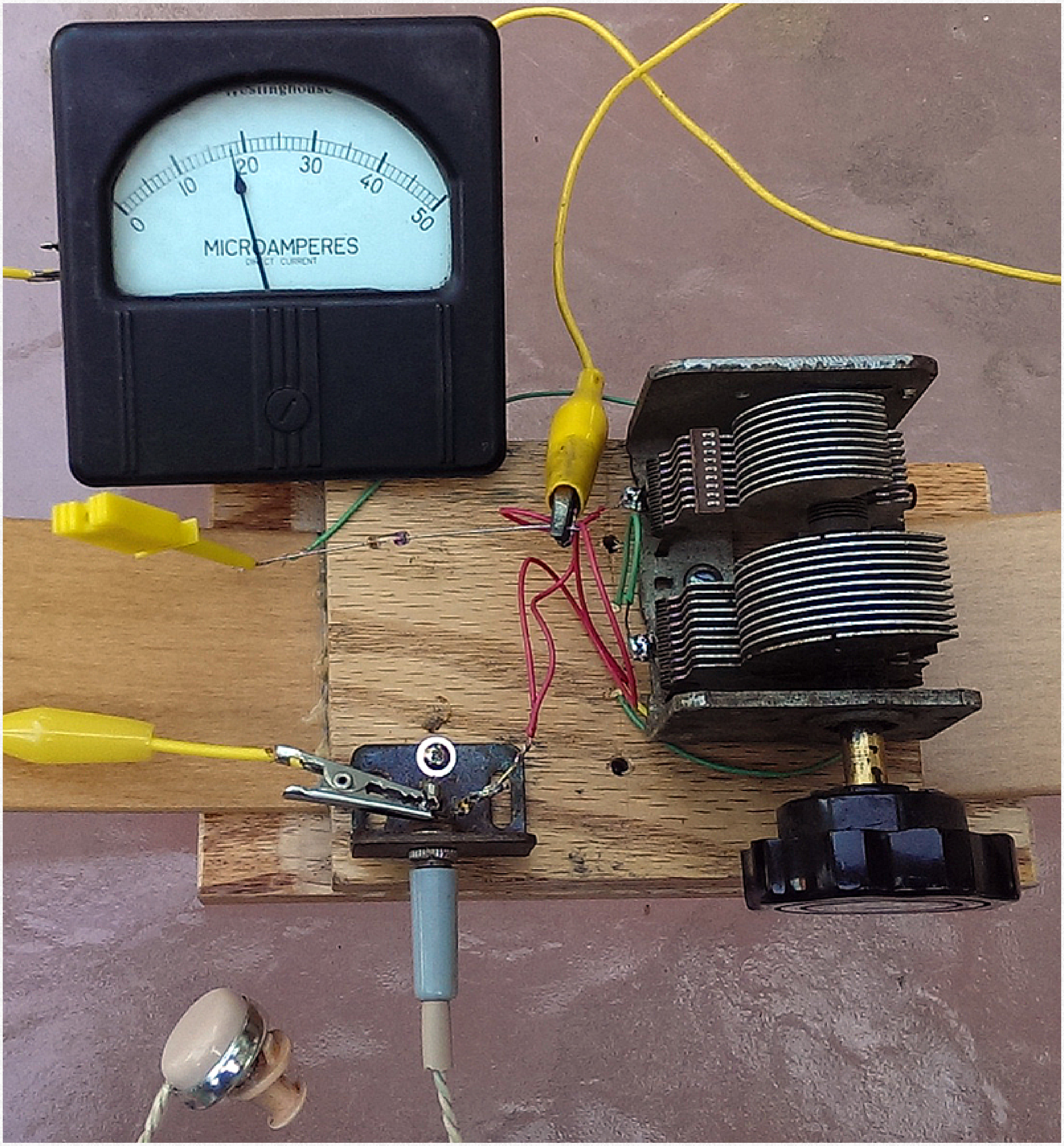
I added one more turn to the primary and that brought the frequency response from 540 to 1700 with increased sensitivity at the low end.


Westinghouse
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10
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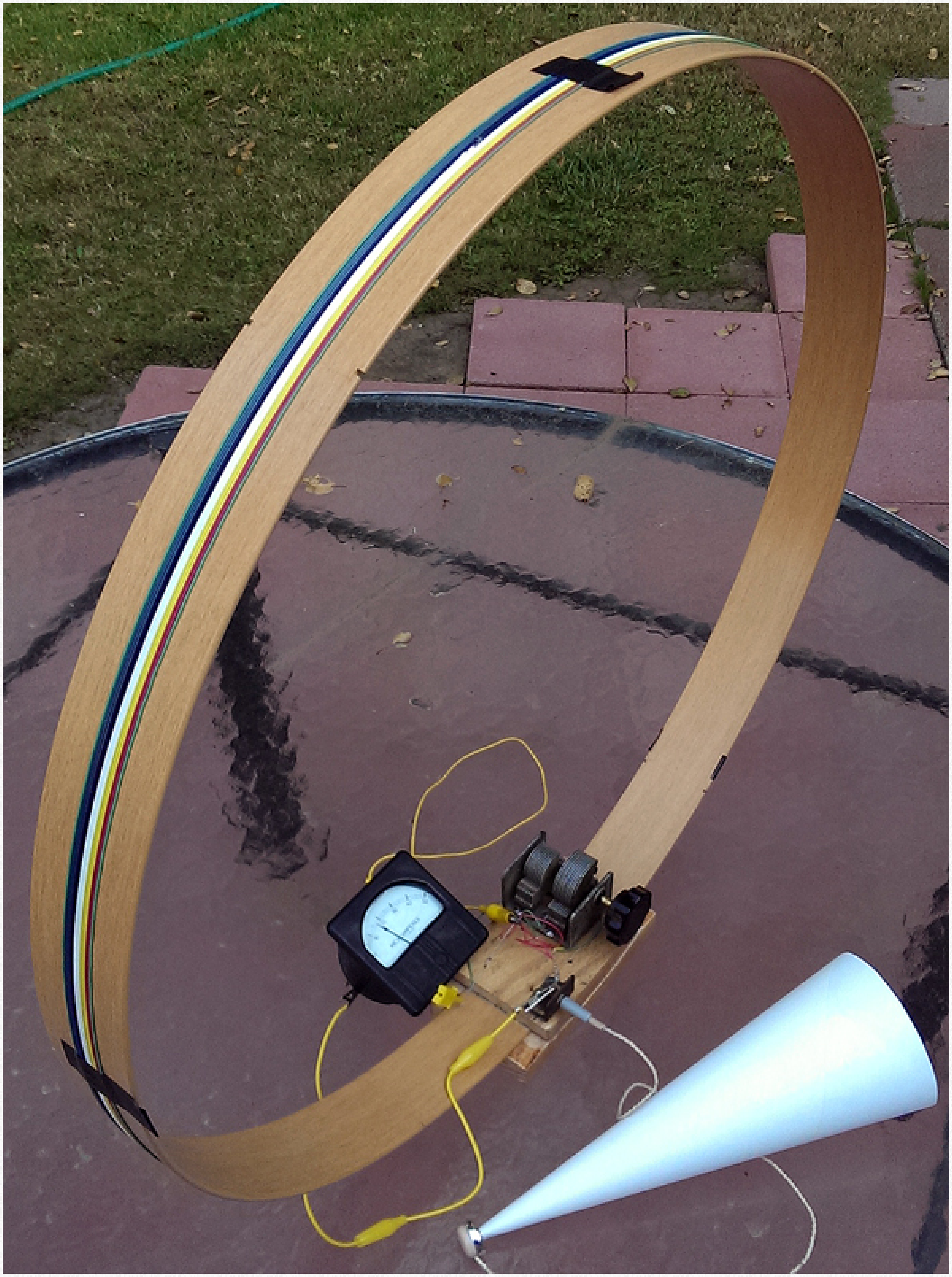
MICROAMPERES
DIRECT CURRENT



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